Electronic Supplementary Material (ESI) for Journal of Materials Chemistry
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Supporting Information

Blue Emitting and Hole-Transporting Materials Based on Bis(4-diphenylaminophenyl)fluorenes for Efficient Electroluminescent Devices

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Synthesis of 2,7-Dibromo-9, 9-bis(4-diphenylaminophenyl)fluorene (2)

A mixture of 2, 7-dibromofluorenone (2.57 g, 6.79 mmol), triphenylamine (16.67 g, 67.99 mmol), and methanesulfonic acid (0.45 ml) was heated at 190 ^{o}C for 6 h. The cooled mixture was poured into water. The greenish precipitate was filtered, washed with water and dried to afford crude compound **3**. Purification by column chromatography using silica gel eluting with a mixture of CH_2Cl_2 and hexane followed by recrystallized from methanol/CH_2Cl_2 afforded light white solids (3.72 g, 61%); ^{1}H NMR (300.13 MHz, $CDCl_3$) δ 6.99 ppm (4H, d, *J* = 9.01 Hz), 7.00 (8H, t, *J* = 9.01 Hz), 7.09 (8H, d, *J* = 9.01 Hz), 7.26 (8H, t, *J* = 9.01 Hz), 7.55 (4H, t, *J* = 9.01 Hz), 7.58 (2H, d, *J* = 9.01 Hz); $_{13}$C NMR (75 MHz, $CDCl_3$) δ 64.65 ppm, 121.55, 121.76, 122.77, 123.06, 124.5, 124.68, 128.69, 129.27, 129.38, 130.82, 137.66, 137.98, 146.74, 147.52 and 153.47; HRMS *m/z* calcd for $C_{49}H_{34}Br_2N_2$, 808.1089; found, 809.1169 [MH^+].

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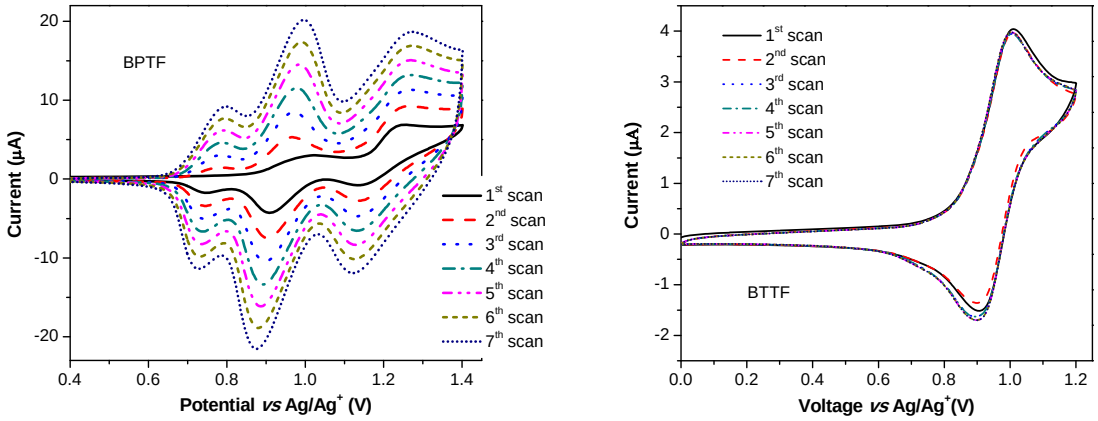


Fig. S1 Multiple CV scan curves of **BPTF** and **BTTF** measured in CH_2Cl_2 at a scan rate of 50 mV s^{-1}.

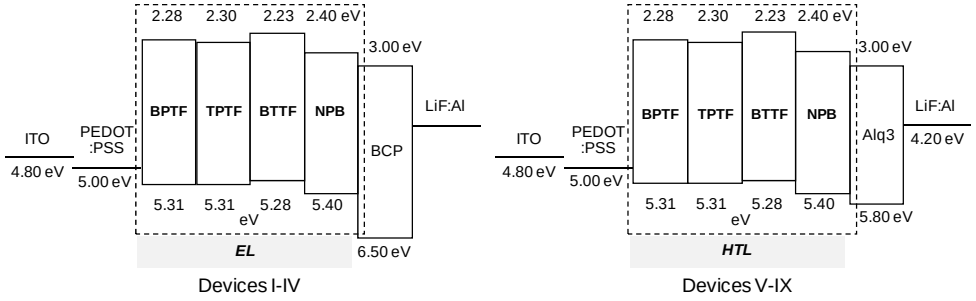
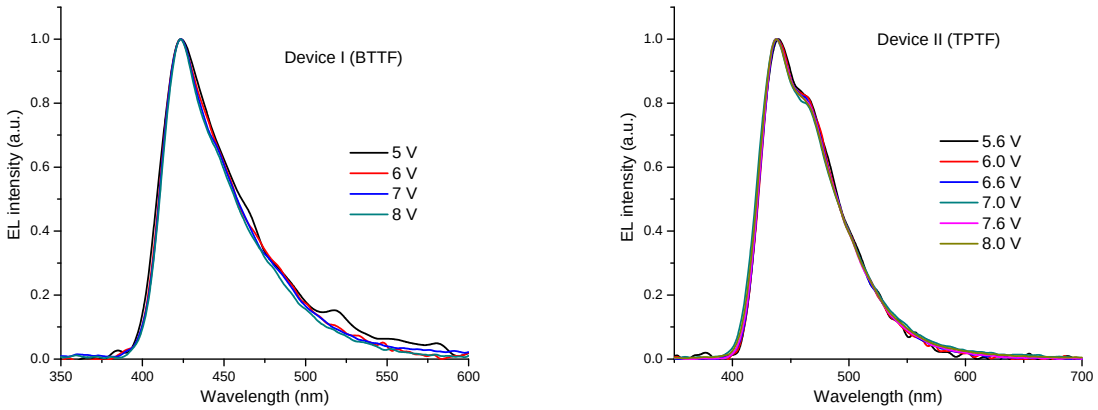


Fig. S2 Band energy diagram of the OLED devices.



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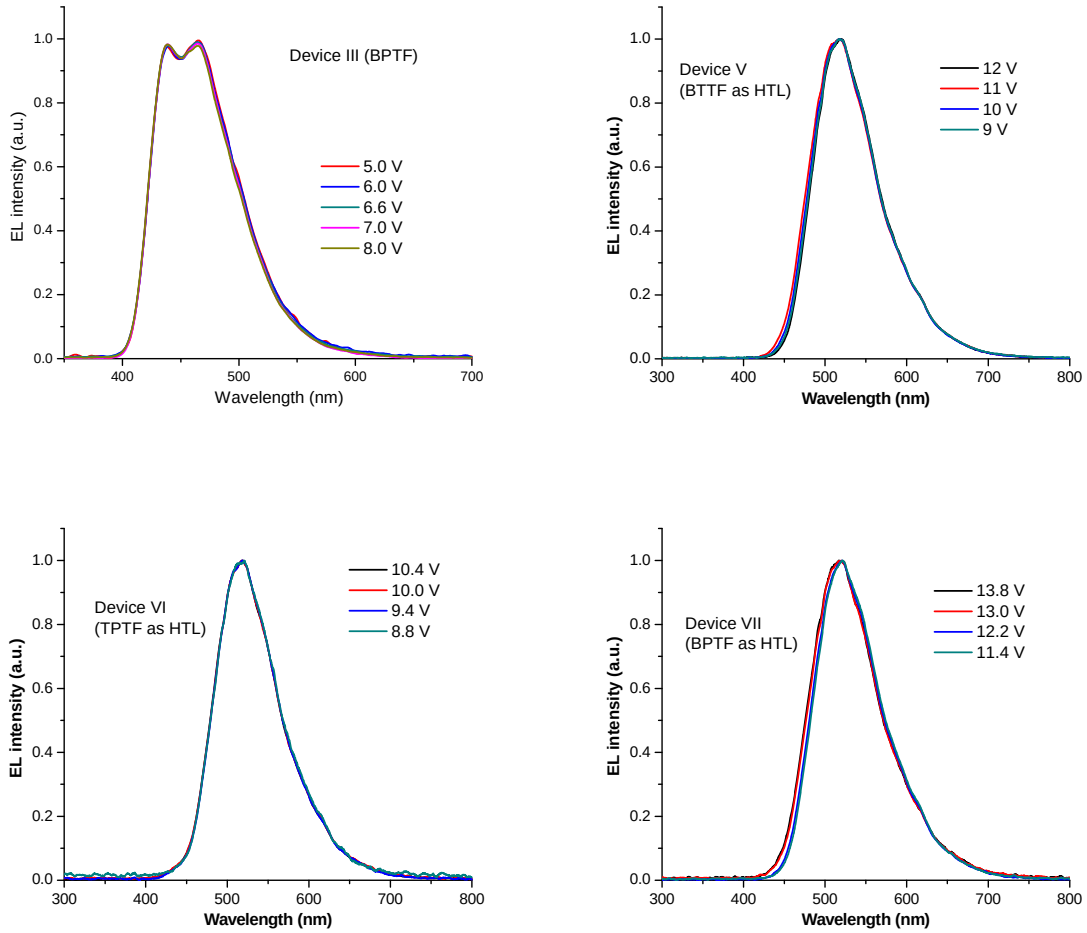

Fig. S3 Normalized EL spectra of OLED devices under different applied voltages.

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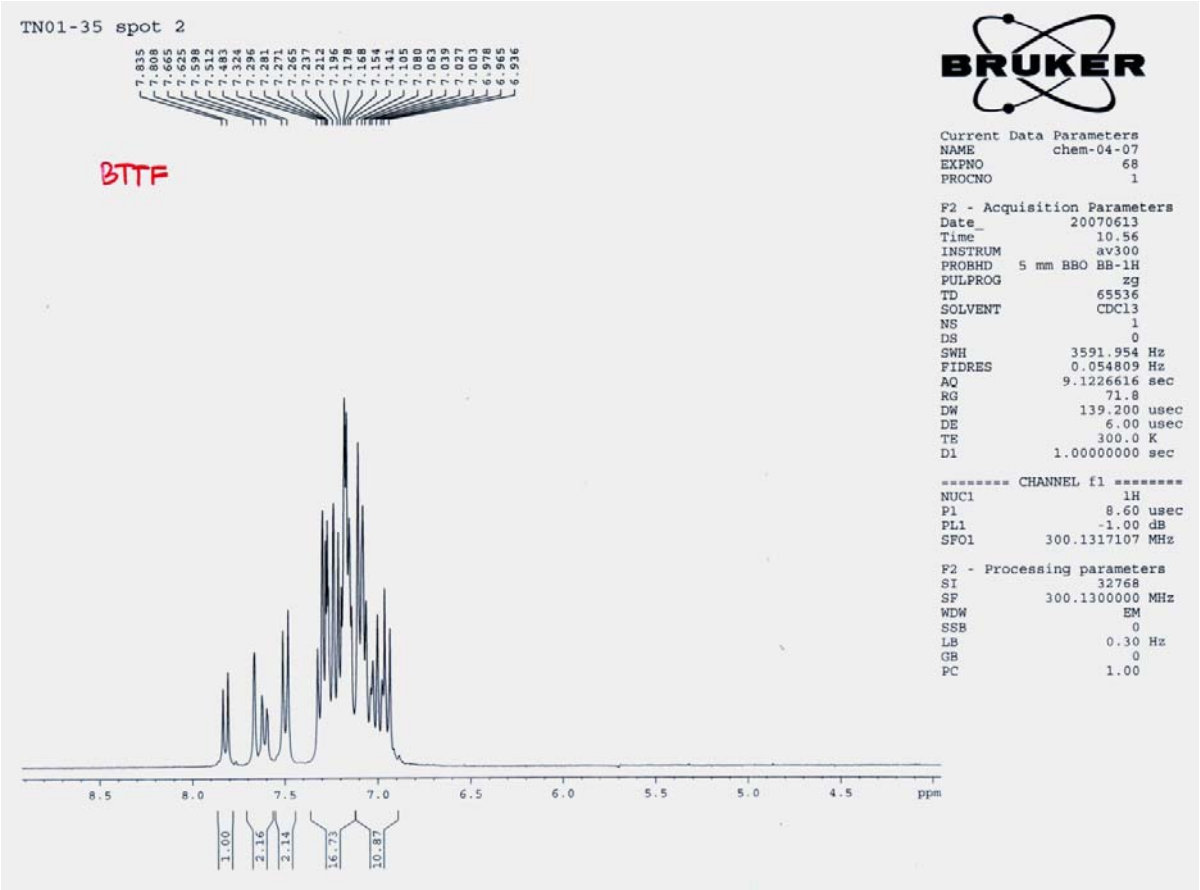
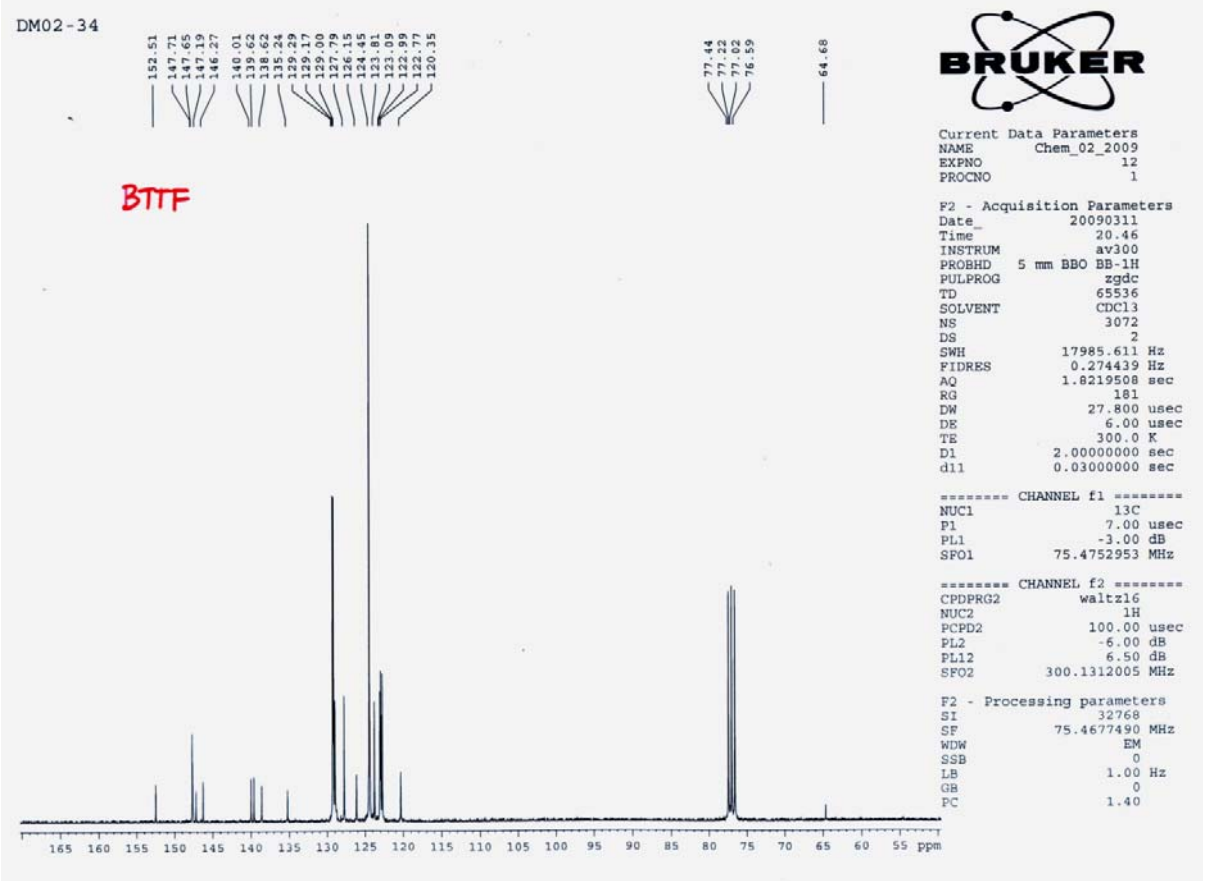
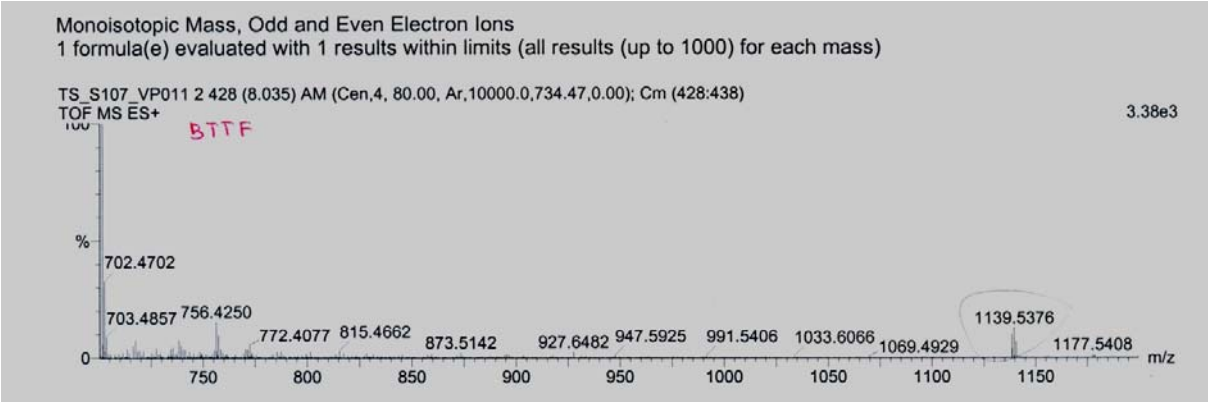
Fig. S4 ^{1}H-NMR, ^{13}C-NMR and Mass spectra of **BTTF**, **TPTF**, **3** and **BPTF**.




DM02-34
152.51
147.71
147.65
147.19
146.27
140.01
139.62
138.62
135.24
129.29
129.17
129.00
127.79
126.15
124.45
123.81
123.09
122.89
122.77
120.35
77.44
77.22
77.02
76.59
64.68
BTTF
BRUKER
Current Data Parameters
NAME Chem_02_2009
EXPNO 12
PROCNO 1
F2 - Acquisition Parameters
Date_ 20090311
Time 20.46
INSTRUM av300
PROBHD 5 mm BBO BB-1H
PULPROG zgdc
TD 65536
SOLVENT CDCl3
NS 3072
DS 2
SWH 17985.611 Hz
FIDRES 0.274439 Hz
AQ 1.8219508 sec
RG 181
DW 27.800 usec
DE 6.00 usec
TE 300.0 K
D1 2.00000000 sec
d11 0.03000000 sec
======== CHANNEL f1 ========
NUC1 13C
P1 7.00 usec
PL1 -3.00 dB
SFO1 75.4752953 MHz
======== CHANNEL f2 ========
CPDPRG2 waltz16
NUC2 1H
PCPD2 100.00 usec
PL2 -6.00 dB
PL12 6.50 dB
SFO2 300.1312005 MHz
F2 - Processing parameters
SI 32768
SF 75.4677490 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40
165 160 155 150 145 140 135 130 125 120 115 110 105 100 95 90 85 80 75 70 65 60 55 ppm


Monoisotopic Mass, Odd and Even Electron Ions
1 formula(e) evaluated with 1 results within limits (all results (up to 1000) for each mass)
TS_S107_VP011 2 428 (8.035) AM (Cen,4, 80.00, Ar,10000.0,734.47,0.00); Cm (428:438)
TOF MS ES+
3.38e3
BTTF
%
0
702.4702
703.4857
756.4250
772.4077
815.4662
873.5142
927.6482
947.5925
991.5406
1033.6066
1069.4929
1139.5376
1177.5408
750 800 850 900 950 1000 1050 1100 1150
m/z

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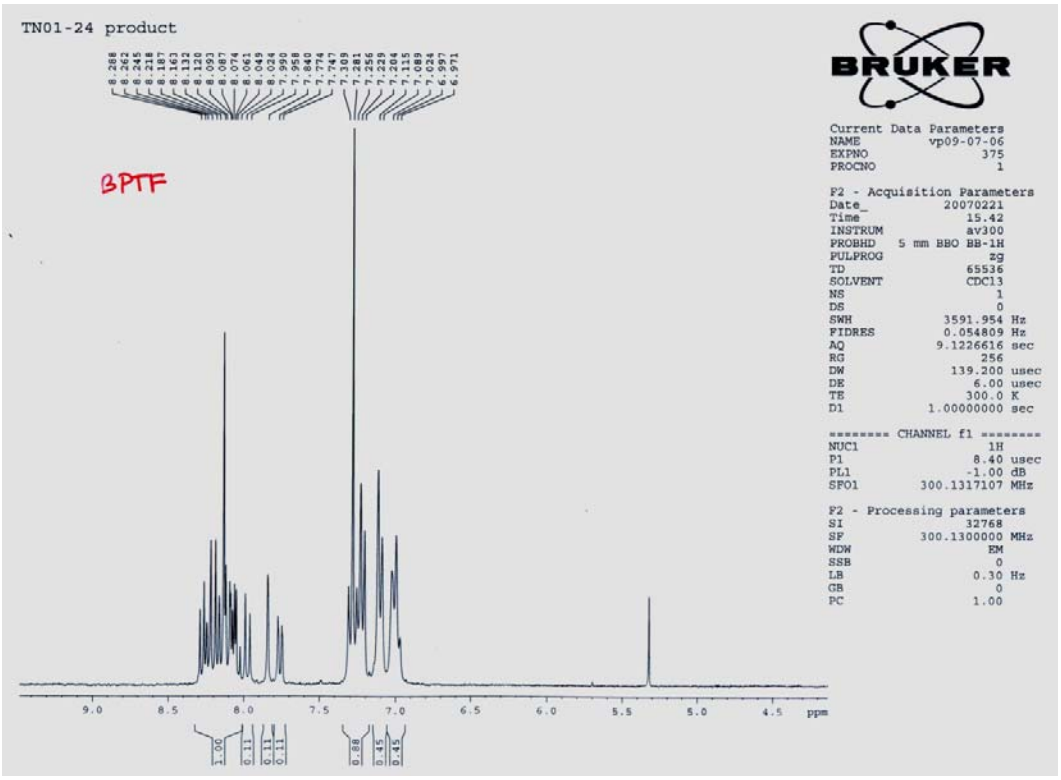

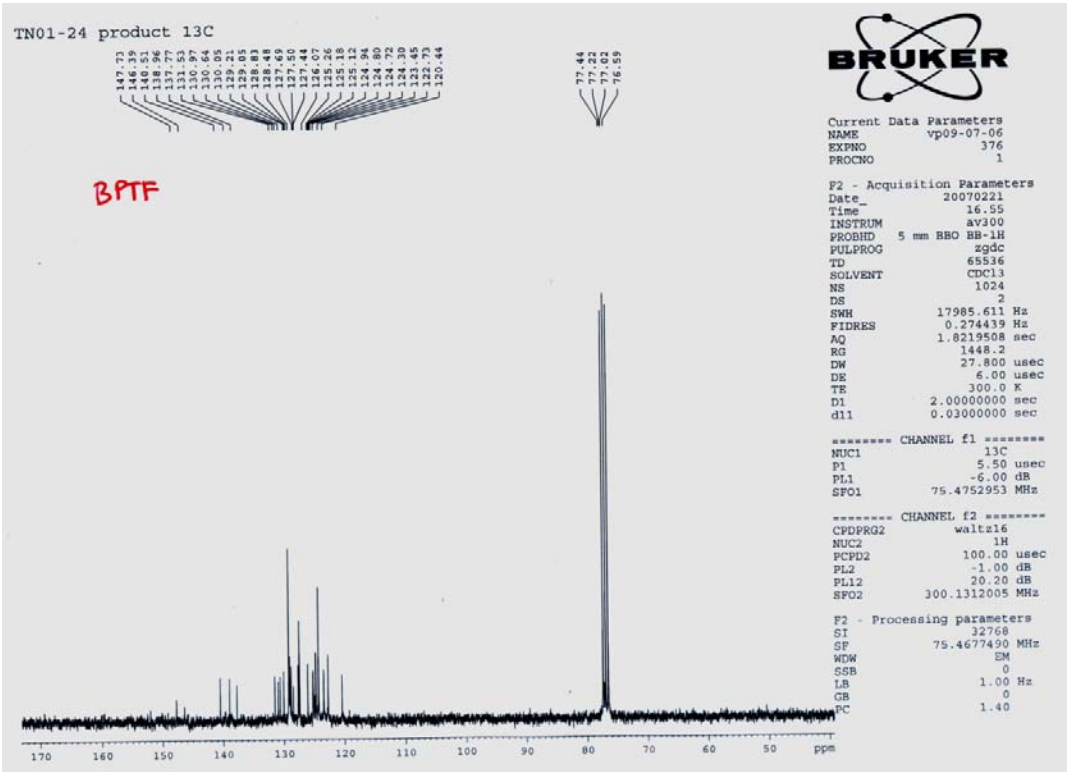

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Analysis Info

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Sample Name	VP015	Instrument	micrOTOF 72
	VP015		

Acquisition Parameter

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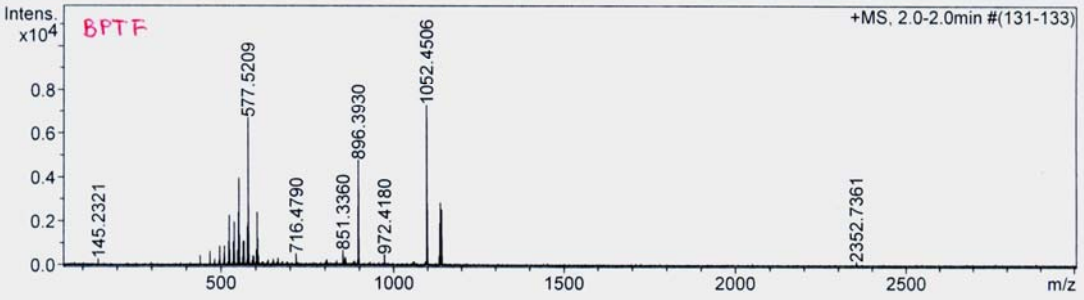
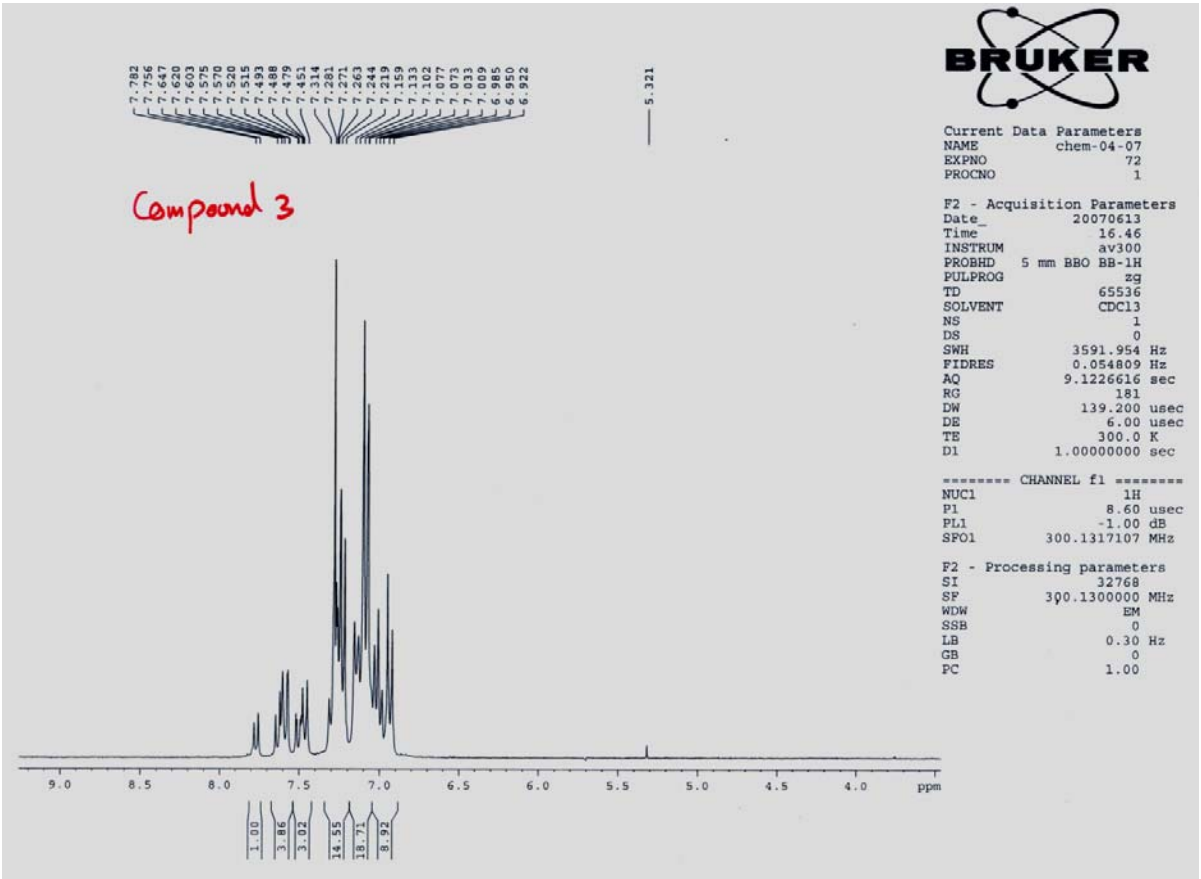
Scan Begin	50 m/z	Hexapole RF	200.0 V	Set Pulsar Push	394 V
Scan End	3000 m/z	Skimmer 1	70.0 V	Set Reflector	1300 V
		Hexapole 1	23.0 V	Set Flight Tube	9000 V
				Set Detector TOF	2300 V





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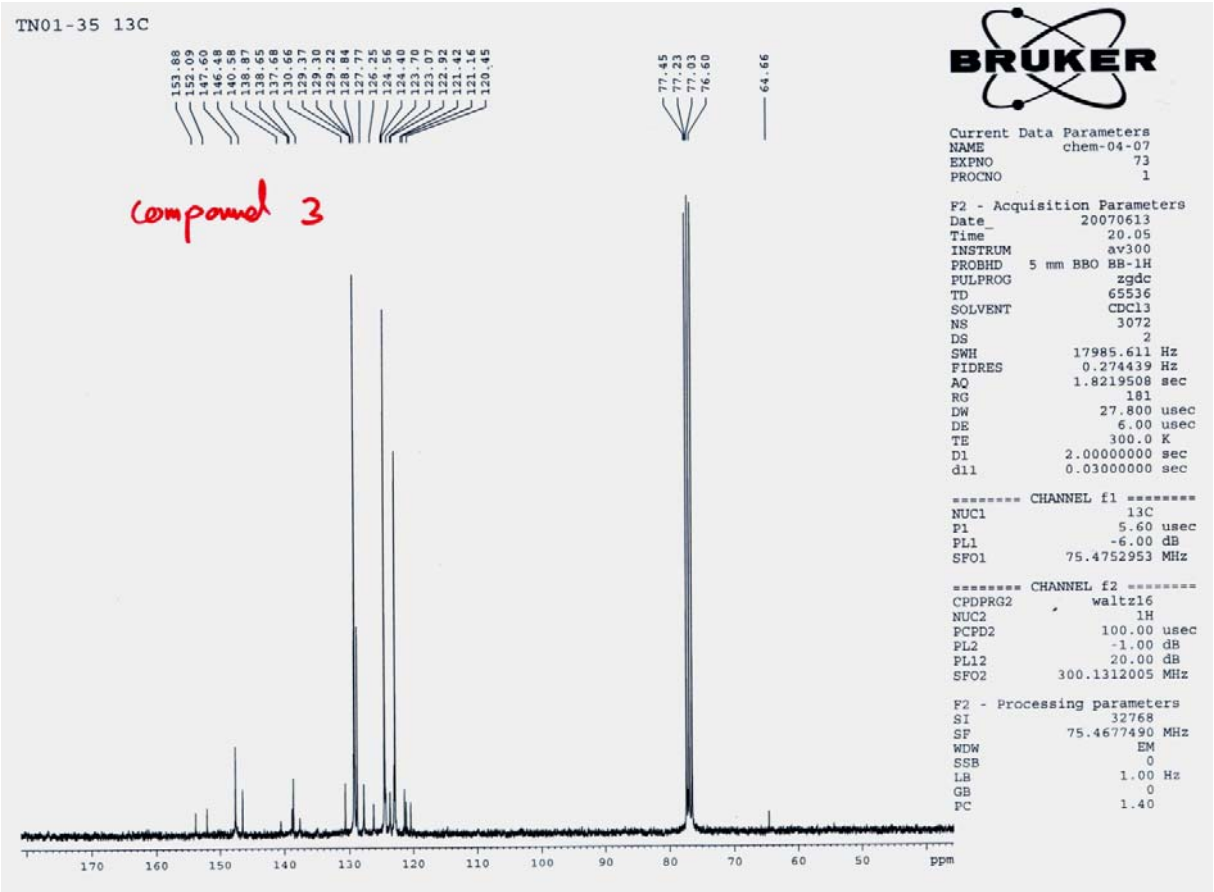

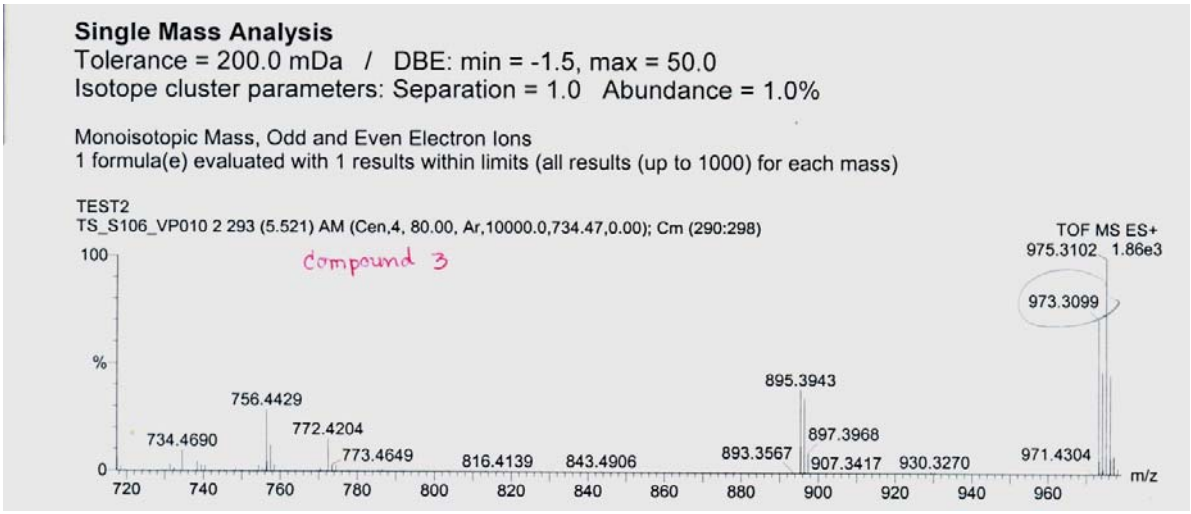

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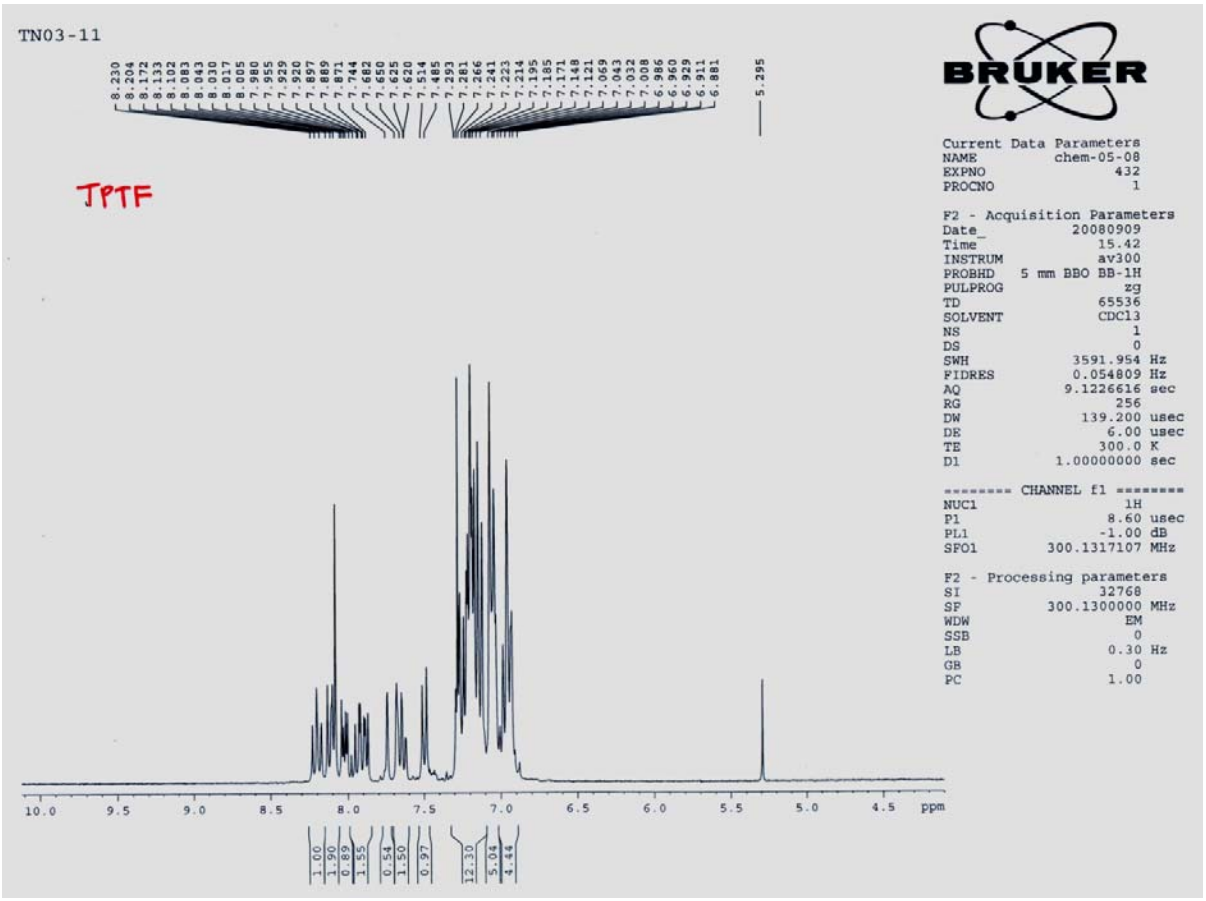

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